4FT/5FT/6FT 3 POINT ROTARY CUT MOWER

USER'S MANUAL

Read carefully and understand **RULES FOR SAFE OPERATION** and instructions before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item # 180250,180251,180252

For technical questions and replacement parts, please call 1-800-222-5381.

Thank you very much for choosing a NORTHERN TOOL + EQUIPMENT CO., INC., Product! For future reference, please complete the owner's record below:

Model: _____ Purchase Date: _____

Save the receipt, warranty and these instructions. It is important that you read the entire manual to become familiar with this product before you begin using it.

This machine is designed for certain applications only. Northern Tool + Equipment strongly recommends this machine is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted Northern Tool + Equipment to determine if it can or should be performed on the product.

Technical Specifications

Specification	Item#180250	Item#180251	Item#180252
Recommended tractor	20-50hp	20-50hp	20-50hp
Cutting width	45 "(1150 mm)	57 "(1450 mm)	69 "(1750 mm)
Overall width	50"(1270 mm)	61"(1560 mm)	73"(1870 mm)
Cutting height	1-1/2" -10"	1-1/2" -10"	1-1/2" -10"
P.T.O. Speed	540 RPM	540 RPM	540 RPM
Blade Tip Speed	12,142 ft/min	12,142 ft/min	12,142 ft/min
Blades	18-3/4" x .475" x2pcs	24" x .475" x2pcs	30-1/2" x .475" x2pcs

SAVE THIS MANUAL

You will need this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures, parts list and assembly diagram. Keep this manual and invoice in a safe and dry place for future reference.

Northern Tool + Equipment Co.,
2800 Southcross Drive West
P.O. Box 1499 Burnsville, MN 5337-0499
Made in China

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SAFETY

READ AND FOLLOW THE INSTRUCTIONS IN THIS MANUAL, ESPECIALLY IN THE SAFETY SECTION. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

TAKE NOTE! THIS SAFETY ALERT SYMBOL IS FOUND THROUGHOUT THIS MANUAL. THIS SYMBOL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS CONCERNING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS.

THIS SYMBOL MEANS
ATTENTION!
BE ON THE ALERT!
YOUR SAFETY IS INVOLVED!

CRITICAL TERMS:

The critical terms **DANGER**, **WARNING** and **CAUTION** are used with the safety messages in this manual and with each safety decal. They are defined as follows:

DANGER: Indicates an immediate hazardous situation that, if not avoided, could result in serious injury or death. This Critical Term is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It also may be used to alert against unsafe practices.

EQUIPMENT SAFETY GUIDELINES

- Safety of the operator and bystanders is one of the main concerns in designing and developing a mower. However, every year accidents occur which could have been avoided by a few moments of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions and insist those working with or for you adhere to them.
- In order to provide a better view, certain illustrations in this manual may show an assembly with a safety guard removed. However, equipment should never be operated in this condition. Keep all guards in place. If guard removal becomes necessary for repairs, reinstall the guard prior to use.
- Replace any safety decal that is not legible or is missing. The locations of such safety decals are indicated in this manual.
- Never operate this equipment while using alcoholic beverages or drugs that can hinder alertness or coordination. Consult your doctor about operating this machine while taking prescription medications.
- **Under no circumstances should children under the age of 18 be allowed to work with or around this equipment. Do not allow anyone to operate or assemble this equipment until they have read this manual and have developed a thorough understanding of the safety precautions and operation.** Review safety instructions with all users annually.
- This equipment is dangerous to children and anyone unfamiliar with its operation. The operator should be a responsible, properly qualified and physically able person familiar with farm machinery and competent in this equipment's operation.
- Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question- **DON'T TRY IT.**
- Use a tractor equipped with a Roll Over Protective System and seat belts. (ROPS)
- Do not modify the equipment in any way. Unauthorized modifications could result in serious injury or death and may impair the function and shorten the life of the equipment.
- In addition to the design of this implement, safety decals and safety equipment, accident prevention is dependent upon the awareness, common sense, forethought, and proper training of everyone involved in the operation, transport, maintenance, and storage of the machine. Also refer to safety messages and operating instructions in each of the appropriate sections of the tractor manual. Pay close attention to the safety decals affixed to the tractor and the Rough Cut Mower.

ROUGH CUT MOWER ASSEMBLY INSTRUCTIONS

STEP 1 Place Rough Cut Mower on a flat, level surface. (See Figure 1)

Figure 1

STEP 2 Remove the wired on PTO shaft, lift pins, and spacers. Loosen and remove the bolts four (4) on the lift arm brackets, that secure the lift arm support straps, lift arms, and lift arm braces from the shipping positions and set aside. (See Figure 2)

Figure 2

STEP 3 Install the right lift arm and lift arm support strap using two (2) short bolt and one (1) lift pin. (See Figure 3) Note: The lift arm support strap has one hole punched larger than the other. The larger hole is to be used to fasten with the lift pin.

Figure 3

STEP 4 Loosen and remove the two (2) nuts and washers for the A-frame tailwheel section, leaving the bolts in place. (See Figure 4)

Figure 4

STEP 5 Install both the right and left side lift arm braces by sliding them over the two (2) A-frame tailwheel bolts that were loosened in Step 4. Start the nuts on the bolts, but at this time DO NOT TIGHTEN THEM. Allow the lift arm braces to rotate forward and rest against the installed lift arm. (See Figure 5)

Figure 5

STEP 6 Install the long top mounting bolt by inserting it through the hole in the left side lift arm brace, the lower of the two (2) holes in the left side lift arm, the spacer, the lower of the two (2) holes in the top of the right side lift arm (which should not be attached to the lift arm bracket at this time), and finally through the right side lift arm brace. Install a washer and start the nut on the bolt, but do not tighten it at this time. (See Figure 6 & 8)

Note: You may have to move the assembly around to start the nut & washer. If unable to get the nut and washer started a "C" clamp may be necessary to compress the assembly to be able to start the nut & washer.

Figure 6

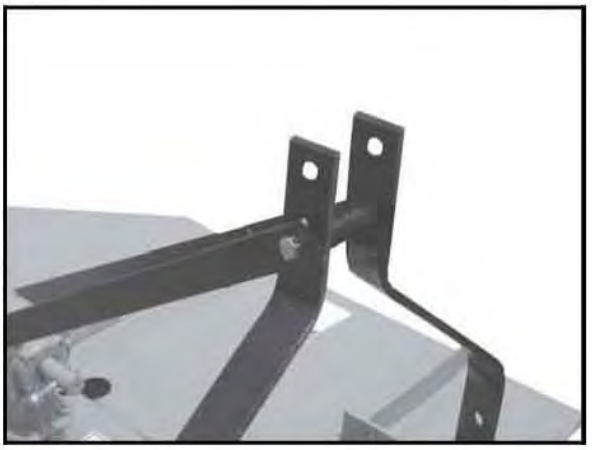


Figure 8

STEP 7 Using the right side lift arm **as a** lever, pull to the **inside** of the lift arm bracket and inset bolt through lift arm and lift arm bracket.
Install washer and nut. Place the lift pin in the larger of the two (2) holes on the lift arm brace and loosely attach the lift arm. Finally insert bolt, nut and washer to lower section of lift arm support strap to lift arm bracket. (See Figure 10)

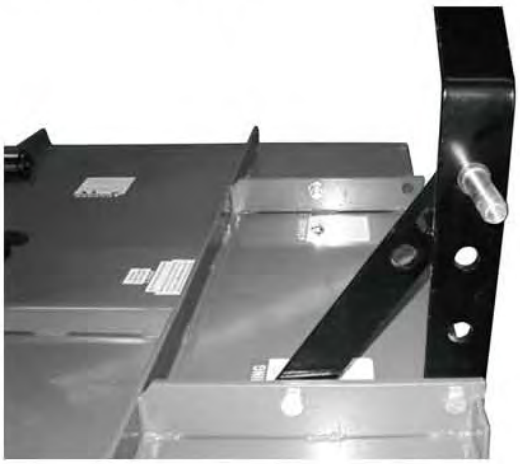


Figure 10

STEP 8 Tighten all nuts and bolts.

BEFORE PUTTING ROUGH CUT MOWER INTO SERVICE

IMPORTANT INSTRUCTIONS PRIOR TO OPERATING

MOWER SHIPPED WITHOUT OIL IN GEAR BOX AND WITHOUT GREASE IN GREASE FITTINGS. UNIT MUST BE SERVICED BEFORE USING.

- Fill Gearbox using Multi-Purpose Gear Oil.
- For all Grease Fittings use a high-temp/multi-purpose grease.

STEP 1 Place Rough Cut Mower so that the deck is secure and level.

STEP 2 Remove $^1/_2$" Pipe Plug (located at top of gearbox) and $^1/_8$" Pipe Plug (located at lower $^1/_3$ of gearbox.)

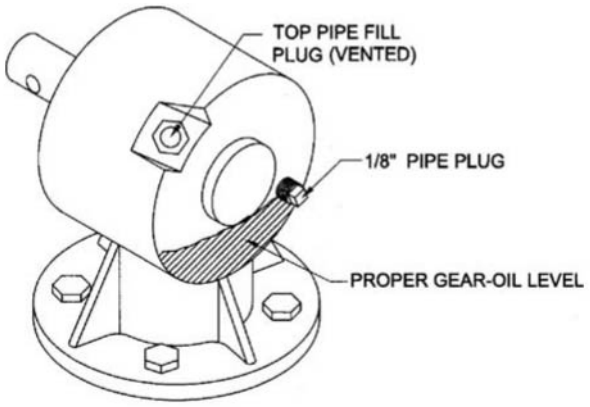
STEP 3 Fill gearbox using multi-purpose gear oil through top $^1/_2$" fill hole until gear oil is level with lower $^1/_8$" hole.

STEP 4 Replace both the $^1/_2$" pipe plug (located at top of gear box) and $^1/_8$" pipe plug (located at lower $^1/_3$ of gear box) and clean off any excess oil.

STEP 5 Grease the following zerts:
*Tail wheel fork (See Figure 13, page 17).
*Tail wheel fork (See Figure 14, page 17).
*Both U-Joints on the PTO shaft (See Figure 14, page 17).

STEP 6 Inspect all guards to insure they are in good working order. If not replace before using.

STEP 7 Check all bolts, nuts and belt to insure they are tight and secure.



CAUTION:
DO NOT overfill gearbox. This could cause damage to oil seals and can cause permanent damage to the gearbox. This issue will not be covered under warranty.

PREPARATION

- Never operate the tractor and mower until you have read and completely understand this manual, the Tractor Operator's Manual, and each of the safety messages found on the safety decals on the tractor and mower.
- Personal protection equipment including hardhat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintenance, repairing, removal, or moving the implement. Do not wear loose fitting clothing or jewelry and be sure to contain long hair around equipment.
- PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS! Tractors with or without mowers attached can often create enough noise to cause permanent hearing loss. We recommend that you use hearing protection if the noise in the operator's position exceeds 80db. Long-term exposure to noise levels over 80db can cause severe hearing loss. Long-term exposure to noise levels over 90db adjacent to the operator may cause permanent total hearing loss.
  NOTE: Hearing loss from loud noises (from tractors, chain saws, radios, and other sources close to the ear) is cumulative over a lifetime, with no chance of natural recovery.
- Always wear your seat belt. Serious injury or even death could result from falling off the tractor — particularly during a rollover when the operator could be trapped under the ROPS or the tractor.
- Clear area to be cut of stones, branches and other debris that might be thrown causing injury or damage.
- Operate only in daylight or good artificial light.
- Ensure mower is properly mounted, adjusted and in good operating condition.
- Ensure that all safety guards and safety decals are properly installed and in good condition.

STARTING AND STOPPING SAFETY

- Check the tractor master guard over the PTO shaft. Make sure it is in good condition and fastened securely to the tractor. Purchase a new guard if old guard is damaged or missing.
- All tractors that are not equipped with a "live" Power Take Off (PTO) need to be equipped with an over-running PTO clutch. These are available through most farm equipment stores.

NOTE: The addition of an over-running PTO clutch may change the length of the PTO driveline required. Pay extra attention to the instructions on the PTO driveline Installation. Be sure that the driveline system guarding is sufficient.

- Mower operating power is supplied from tractor PTO. Refer to your tractor manual for PTO engagement and disengagement instructions. Know how to stop the tractor and mower quickly in case of an emergency.

STARTING AND STOPPING SAFETY (Continued)

- The engine RPM should always be at idle speed when engaging the PTO. Once engaged and you are ready to start cutting, increase the PTO speed to approximately 540 RPM and maintain throughout the cutting operation.
- The use of this equipment is susceptible to certain hazards that cannot be protected against by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using.
- Most accidents occur because of neglect or carelessness. Keep all assistants and bystanders several hundred feet from the operating Rough Cut Mower.
- When machine is operated in populated areas where thrown objects could injure persons or property, **operation must be stopped if anyone comes within a few hundred feet.**
- The majority of the accidents involve entanglement on the driveline, injury of bystanders by the objects thrown by the rotating blades, and operators being knocked off the tractor by low hanging limbs and then being run over by the mower. Accidents are most likely to occur with machines that are loaned or rented to someone who has not read the owner's manual and is not familiar with a Rough Cut Mower.
- The Rough Cut Mower is designed for use on tractors with a **540-RPM** power take off.
- Install and secure all guards and shields before starting or operating. The discharge chute, flaps, driveline guards and tractor guards should be used and maintained in good working condition. They should be inspected carefully daily for missing or broken cables, chain links, shields, and guards. Worn items must be replaced at once to reduce the possibility of injury
- Disengage Power Take Off (PTO) and place tractor transmission in neutral before attempting to start engine.
- Many varied objects, such as wire, cable, rope, or chains can become entangled in the working parts of the mower. These objects could then swing outside the housing at a greater velocity than the blades. Such a occurrence is extremely hazardous. Inspect the cutting area for such objects before mowing. Remove any objects from the site.
- Never allow the cutting blade to contact objects. Cut higher at first, allowing Rough Cut Mower to clear such hidden objects. Never assume an area is clear. **Always Check!**
- Always stop the tractor, disengage PTO, allow cutter blades to come to a complete stop, lower implement to the ground, set brake, shut off the tractor engine and remove the ignition key before dismounting tractor. Never leave equipment unattended while the tractor is running.
- Never place hands or feet under mower. Stay clear of all moving parts.

STARTING AND STOPPING SAFETY (Continued)

- Do not reach or place any part of your body under the equipment until it is blocked securely.
- Do not allow riders on the Rough Cut Mower or tractor at any time. There is no safe place for riders.
- Do not operate unless all personnel, livestock, and pets are several hundred feet away to prevent injury by thrown objects. Never direct the discharge chute toward anyone.
- Never operate tractor and Rough Cut Mower under trees with low hanging limbs. Operators can be knocked off the tractor and then run over by the rotating blades.
- The rotating parts of this machine have been designed and tested for rugged use. However, they could fail upon impact with heavy, solid objects such as steel guardrails and concrete abutments. Such an impact could cause broken objects to be thrown outward at very high velocities. To reduce the possibility of property damage, serious injury, or even death, never allow the cutting blades to come in contact such objects.
- Stop mower and tractor immediately upon striking an obstruction. Turn engine off, remove key, then inspect and repair any damage before resuming operation.
- Stay alert for uneven terrain, holes, rocks, roots and other hidden hazards. Keep away from drop-offs and hazards that could cause rollover. Use extreme care and maintain minimum ground speed when transporting or operating on hillsides, over rough ground and when operating close to ditches or fences. Be careful and slow down when turning sharp corners and changing direction on slopes. Do not start or stop suddenly on slopes and avoid operating on steep slopes. In extremely uneven terrain, rear wheels weights, front tractor weights, and/or tire ballast should be used to improve stability.
- Drive Rough Cut Mower diagonally over sharp dips and avoid sharp drops to prevent tractor and Rough Cut Mower from “hanging up”. Always cut downward on slopes, never cut across the face. Always check tractor manual for proper use on slopes. Practice will improve your skills in maneuvering on rough terrain.
- A minimum 20% of the tractor and equipment weight must be on tractor front wheels. Without this weight, the tractor could tip over, causing personal injury or death. The weight may be attained with a front-end loader, front wheel weights, ballast in the tires or front tractor weights. When attaining a minimum 20% of the tractor and equipment weight on the front wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. **Do not guess or estimate!**

TRANSPORT SAFETY

- Always observe state and local laws governing highway safety and the travel of farm machinery on public roads.

- The use of flashing amber lights is acceptable in most locations. However, some locations prohibit their use. Local laws should be checked for all lighting and marking requirements.

- When driving the tractor and equipment on roads or highways use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 20 mph. Reduce speed on rough roads and surfaces.

- Plan your route to avoid heavy traffic.

- Always install transport locks, pins or brackets before transporting.

- Do not drink and drive.

- Be a safe and courteous driver. Always yield to oncoming traffic in all circumstances, including narrow bridges, intersections, etc. Watch for traffic when crossing or operating in close proximity to roadways.

- Turn curves and go up and down hills only at a low speed at a gradual steering angle. Make certain that a least 20% of the tractor's weight is on the front wheels to maintain safe control. Slow down on rough and/or uneven surfaces. Always check tractor manual for proper use on slopes.

- Use extreme care and maintain minimum ground speed when operating close to ditches and/or fences. Be careful when turning sharp corners.

- Never allow riders on either tractor or mower.

ATTACHING TO TRACTOR

WARNING

Never stand between tractor and finishing mower while backing the tractor up to the hitch.

STEP 1 Attach to tractor's three point hitch as described in the Tractor's Operator's Manual.

STEP 2 Apply any multi-purpose grease to the outside of the male (inner) PTO shaft section. Assemble PTO shaft and install on Rough Cut Mower and tractor.

WARNING

Failure to install the retaining clip on gearbox input shaft would allow the driveline to swing freely if the bolt is sheared causing possible injury or death.

STEP 3 Pull shaft on tractor side of PTO shaft yoke to be sure it has locked in place. Make certain PTO shaft guards are in place and good working condition.

STEP 4 The PTO shaft guard is a non-rotating design and must be secured prior to equipment use. Using the chain on each yoke guard to attach to a fixed object on the tractor and equipment end that will not allow the PTO shaft guard to rotate during operation.

OPERATING INSTRUCTIONS

This mower was designed to CUT PASTURE GRASS AND ROUGH AREAS UP TO 1" IN DIAMETER. Use of your Rough Cut Mower to cut any material larger than 1" in diameter may damage the mower and void your warranty.

PRE-OPERATIONAL ADJUSTMENTS

Set tractor's lift control stop at a position that will prevent the PTO shaft from coming in contact with the front edge of the mower when it is at full lift. Consult your tractor manual for instructions.

CUTTING HEIGHT ADJUSTMENT

To prevent blades from striking the ground, your Rough Cut Mower should be set to the highest position that will give you the desired cutting height. By setting your mower up this way, you reduce blade wear and stress on the mower. Mowing at regular intervals will produce far better results than periodic mowing.

STEP 1 Raise Rough Cut Mower off the ground with the tractor and SECURELY BLOCK IN POSITION. Remove 5/8" bolt from adjusting bracket. (See Figure 11).

Figure 11

STEP 2 Move the A-frame tailwheel up or down to desired cutting height. Reinstall 5/8" bolt and tighten to secure in position. (See Figure 12)

Note: It may be necessary to loosen the A-frame tailwheel attachment bolts. (See Figure 4, page 6)

Figure 12

Note: For best results in heavier cutting conditions adjust the deck so the rear of the mower is approximately 2" higher than the front. This method requires less horsepower and ground speeds of approximately 3-5mph. If finer shredding results are desired, adjust the deck to level or slightly lower in the rear. This method will keep foliage under the deck longer resulting in finer pieces. The down side of this method is if it takes a lot more horsepower and very slow ground speed. This method is not recommended unless a PTO speed of 540 RPM can be maintained.

ROUGH CUT MOWER OPERATION

STEP 1 Before each use, perform the maintenance described in maintenance section (page 17).

STEP 2 Read, understand, and follow the information on safety, preparation, starting and stopping safety, operational safety and transport safety warning sections of this manual (pages 10 thru 13).

STEP 3 With tractor running, lower Rough Cut Mower into working position.

STEP 4 With the tractor at idle RPM, engage PTO and slowly advance throttle to approximately 540 PTO RPM.

NOTE: The Rough Cut Mower was designed to run at 540 PTO RPM.

STEP 5 Select a low tractor gear and begin to mow. Tractor ground speed is to be controlled by gear selection only and not engine speed. Tractor PTO speed should allow Rough Cut Mower to maintain 540 PTO RPM and thus maximum blade tip speed.

NOTE: Do not allow the tractor engine or Rough Cut Mower to bog down or stall. This causes unnecessary wear and tear on the mower and tractor. If this continues to occur, reduce ground speed and/or raise the cutting height of the Rough Cut Mower.

NEVER ATTEMPT TO CLEAN OUT A CLOGGED DISCHARGE CHUTE UNTIL THE MOWER BLADES HAVE COMPLETELY STOPPED AND THE TRACTOR HAS BEEN SHUT OFF.

STEP 6 After each use, clean all debris from the top and bottom of the Rough Cut Mower. Replace any missing or illegible safety decals. Inspect for any damaged or worn parts and replace before next use. Store the Rough Cut Mower in a dry environment.

MAINTENANCE

1. Periodically check and maintain proper gear oil level.
2. Approximately every 8 hours, grease spindles (3), roller axle (1), wheel forks (4), wheel axles (4), PTO shaft universal joints (2), and PTO telescoping surface.

NOTE: Use a high-temp/multi-purpose grease.

3. Before each use check to make sure all safety features are installed and working properly.
4. Keep blades sharp and balanced at all times. When replacing the blades, replace all blades and blade bolts at the same time.
5. Periodically check all nuts, bolts, and belt to insure they are tight and secure.

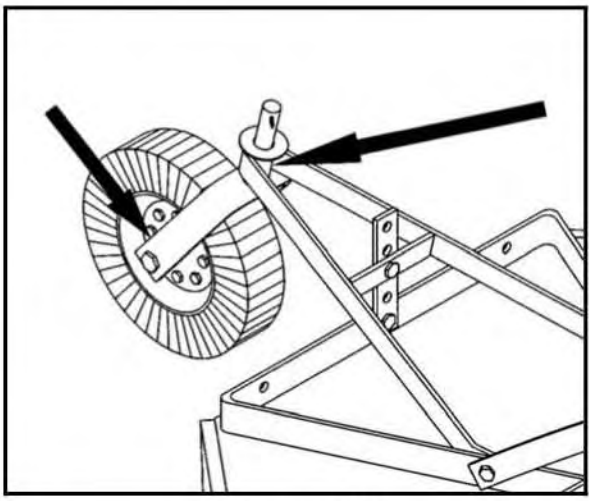


Figure 13

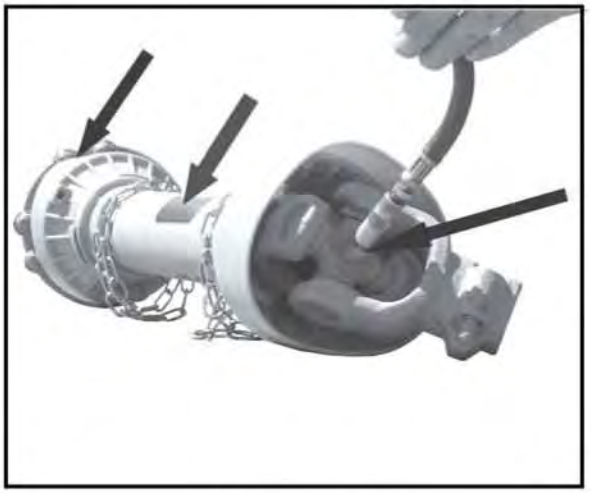


Figure 14

Arrows indicate grease points.

MAINTENANCE SAFETY

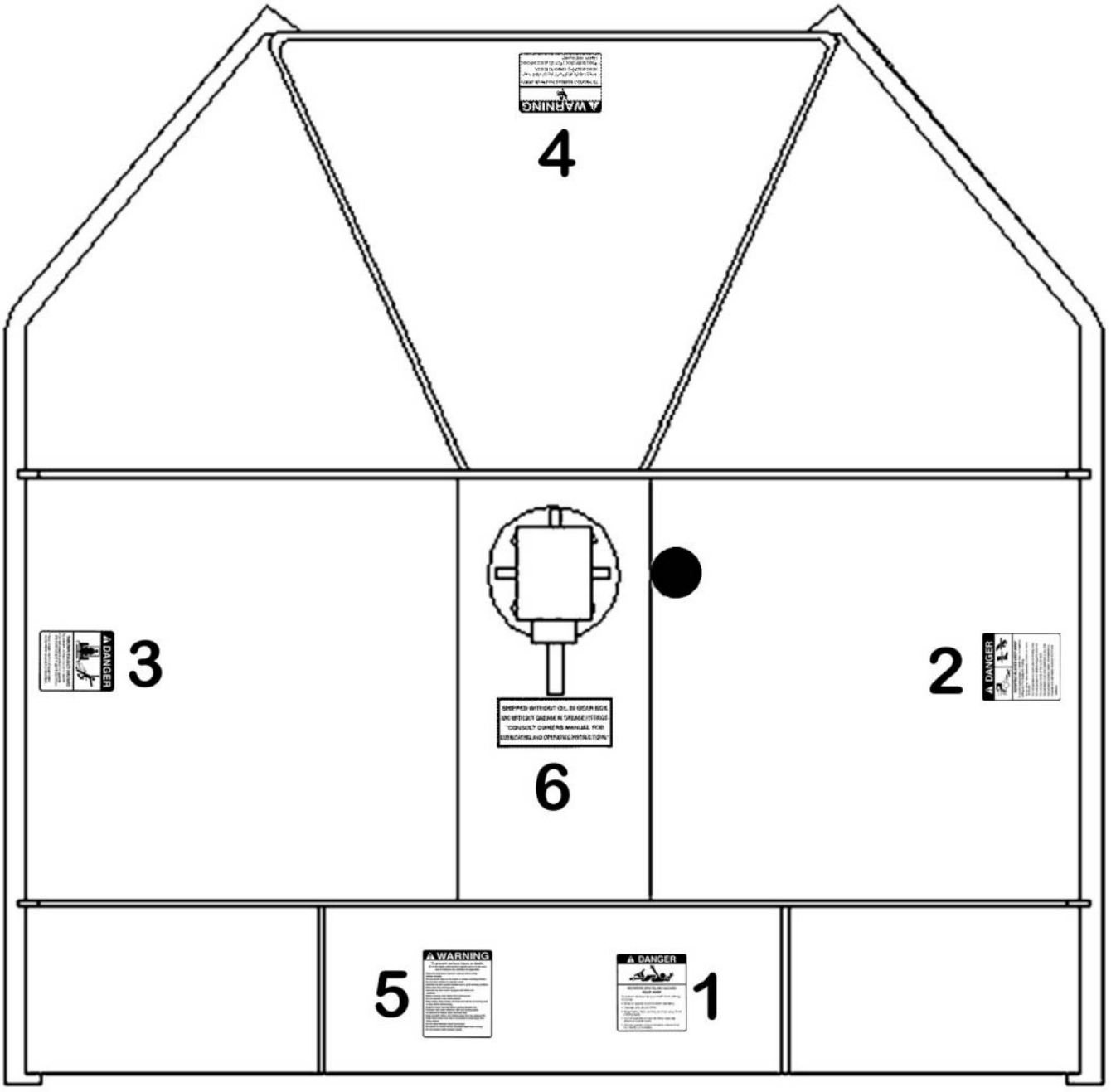
- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
    - Follow good shop practices.
    - Keep service area clean and dry.
    - Be sure electrical outlets and tools are properly grounded.
    - Use adequate light for the job at hand.
- Make sure there is ample ventilation. Never operate the tractor engine in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this machine, disengage the PTO, be certain all moving parts on attachments have come to a complete stop, shut off the engine, set the bakes, and remove the ignition keys before attempting to perform maintenance.
- Never work under equipment unless it is blocked securely.
- Always use personal protection devices such as eye, hand and hearing protectors when performing any service or maintenance.
- Frequently check mower blades. They should be sharp, free of nicks and cracks and securely fastened in place.
- Periodically tighten all bolts, nuts, screws and check that all cotter pins are properly installed to make certain unit is safe to operate.
- When completing maintenance or service, make sure all safety guards and devices are installed before using the Rough Cut Mower.
- After servicing, be sure all tools, parts and service equipment are removed from the Rough Cut Mower.
- Do not allow debris, grease or oil to build up on any deck or platform.
- Where replacement parts are necessary for periodic maintenance and servicing, factory replacement parts must be used to restore your equipment to original specifications.
- The manufacturer and/or distributor will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
- A first aid kit should be kept readily accessible while performing maintenance on this equipment.

STORAGE SAFETY

- Following use, or when unhooking the mower, disengage the PTO, stop the tractor, set the brakes, shut off the engine and remove the ignition keys.
- Store the unit in an area away from human activity.
- Do not park equipment where it can be exposed to direct contact with livestock for long periods of time. Damage to mower and/or livestock injury could result.
- Make sure all parked machines are on a hard, level surface and that all safety devices engaged.

SAFETY DECAL LOCATIONS

The safety decals and positions on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various safety decals, the type of warning and the area or specific function related to that area that requires your SAFETY AWARENESS.



REMEMBER: IF the safety decals have been damaged, removed, become illegible or parts have been replaced without decals, new safety decals must be applied.

⚠ DANGER

ROTATING DRIVELINE HAZARD
KEEP AWAY

To prevent serious injury or death from rotating driveline:

- Keep all guards in place when operating.
- Operate only at 540 RPM
- Keep hands, feet, clothing and hair away from moving parts.
- Do not operate without driveline securely attached at both ends.
- Do not operate without driveline shields that turn freely on driveline.

1

⚠ DANGER

ROTATING BLADES-KEEP AWAY

To prevent serious injury or death when the engine is running and the blades are rotating:

- Never allow riders, especially children, on tractor or mower.
- Do not operate with bystanders in mowing area.
- Do not operate with deflectors/guards removed.
- Do not place hands or feet under deck.
- Do not stand on or near implement at any time.
- Do not stand between tractor and implements.
- Operate only with tractor equipped ROPS and seatbelts.

2

⚠ DANGER

THROWN OBJECT HAZARD

To prevent serious injury or death:

- Do not operate unless all guards are installed and in good condition.
- Stop blade rotation if bystanders come within several hundred feet.

3

⚠ WARNING

TO PREVENT SERIOUS INJURY OR DEATH

- Keep hands and body out of hitch area when attaching mower to tractor.
- Keep body clear of crush point between tractor and mower.

4

⚠ WARNING

To prevent serious injury or death:

Si no lee ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad.

- Read and understand Operator's Manual before using. Review annually.
- Do not permit riders on the tractor or mower, including children.
- Do not allow children to operate mower.
- Operate only with guards installed and in good working condition.
- Keep away from moving parts.
- Operate only with tractor equipped with ROPS and seatbelts.
- Before mowing, clear debris from mowing area.
- Do not operate in the raised position.
- Stop engine, lower mower, set brake and wait for all moving parts to stop before dismounting.
- Support mower securely before working beneath unit.
- Transport with clean reflectors, SMV and working lights as required by federal, state, and local laws.
- Keep yourself, others, and clothing away from the rotating PTO.
- Keep others away from area to be mowed to avoid injury from flying objects.
- Do not stand between tractor and mower.
- Be careful on uneven terrain. Decrease speed when turning.
- Do not exceed a safe transport speed.

5

SHIPPED WITHOUT OIL IN GEAR BOX AND WITHOUT GREASE IN GREASE FITTINGS. "CONSULT OWNERS MANUAL FOR LUBRICATING AND OPERATING INSTRUCTIONS."

6

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
Leaves a streak of uncut or partially cut grass.	1. Mower not level side to side.	Level 3 pt. Hitch linkage on tractor.
	2. Blades dull or bent.	Sharpen or replace blades.
	3.Carrier RPM too low.	Use correct PTO speed.
	4. Field conditions are so wet that the tractor tire is pushing grass into mud.	Too wet to mow. Stop operation and wait until it is drier.
	5. Ground speed too fast.	Reduce ground speed by shifting to a lower gear.
	6. Blades lock back.	Free blades.
	7. Blades riding up due to blade bolt wear or loose bolts.	Replace blade bolts.
	8. Grass is down from previous weather conditions,	Mow in only one direction.
	9. Possible build up of marerial under mower.	Clean mower.
	10. Weed and grass stems are pushed down by tractor tires and do not rebound up so they can be cut (this can happen when weed/grass is high)	Mow again in opposite direction. MOW back and forth with enough overlap to mow tire track of previous cut again. Offset mower toleft 4-6"by adjusting stabilizer bars. Then mow in counter clockwise direction (rotation direction of blades will help cut stems pushed forward).
Grass cut lower in center of swath than at edge.	Height of mower lower at rear or front.	Adjust mower height and attitude so that mower rear and front are within 1/2 "of same height.See instructions.
Material discharges from mower unevenly; bunches of material along swath.	1. Material too high and too much material.	Reduce ground speed but maintain 540 rpm at tractor PTO, or make two passes over material. Raise mower for the first pass and lower to desired height for the second and cut a 90° to first pass. Raise rear to mower high enough to permit material to discharge, but not so high that conditions listed above occur.

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
Material discharges from mower unevenly; bunches of material along swath. (Continued)	2. Grass wet.	Allow grass to dry before mowing. Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help.
	3.Rear of cutter too low,trapping material under mower.	Adjust mower height and attitude. (See instructions.)
Gearbox overheating.	1. Low on lubricant.	Fill to proper level.
	2. Improper type lubricant.	Replace with proper lubricant.
	3. Excessive trash build-up around gearbox.	Remove trash.
Blade is scalping ground.	1. Mower too low.	Raise mower-reset tailwheel and 3-pt. control stop.
	2.Field is ridged.	Cut field at a different angle.
	3.Field is too wet.	Stop and wait until it is drier.
Mower will not cut. (Shear bolt dribe only)	Shear bolt sheared.	Install new shear bolt.
Mower will not cut all the time.(Slip clutch drive only)	Slip clutch slipping.	Adjust slip clutch according to instructions.
Mower moves from side to side when cutting.	Loose tractor sway chains or bars,or sway blocks improperly installed.	Adjust sway chains,bars,or sway blocks.
PTO contacts cutter front frame when raised.	Raising mower too high or incorrect adjusrment of tractor top link.	Adjust top link or tractor lift stops. (See arrachment instructions.)
Blade bolts come loose	1. Bolts not tightened.	Tighten bolts to 350 ft./lb.
	2. Bolt hole elongated or oversized.	Replace blade carrier.
	3. Blade bolt threads are worn or damaged.	Replace blade bolt, lockwasher, and nut.

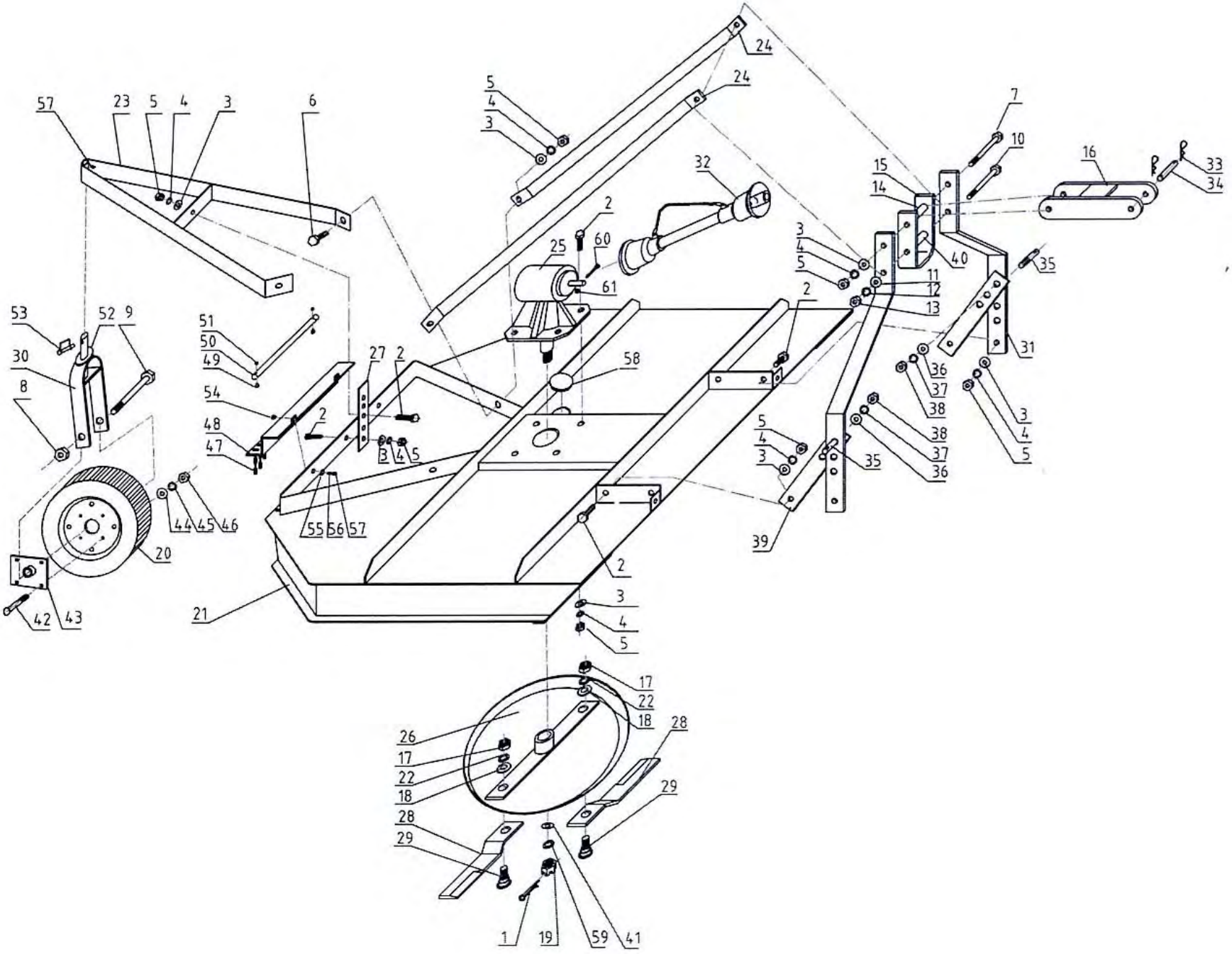
TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
Blade wears too fasr.	1. Cutting in sandy conditions.	Increase cutting height.
	2. Cutting in rocky conditions.	Increase cutting height.
	3. Blades hitting ground.	Increase cutting height.
Mower seems to require excessive power.	1. Advancing into grass or brush too rapidly.	Reduce forward travel speed.
	2. Hitting ground.	Raise mower and reset tailwheel.
	3. Worn or dull blades.	Sharpen or replace blades.
	4. Tractor not large enough.	Use larger horsepower tractor.
Excessive vibration.	1. Check gearbox bolts.	Tighten if loose.
	2. Check for loose nuts on bladeholder and blades.	Tighten if loose.
	3. Check for bent output shaft.If shafr is bent, oil will normally leak from bottom seal.	Replace shaft if bent.
	4. Check to see if blades are free-swinging.	Free blades so they swing.
	5. Check for even wear on each blade tip. Were both blades changed at the same time?	Weigh blades. Weight should be within 1 oz. Always replace both blades
	6. Blade broken.	Replace blades, in sets.
	7. Blade beam bent.	Replace blade beam.
	8. New blade or bolts marched with worn blad or bolts.	Replave blades or bolts in sets.
	9. Dribelines not phased correctly Implement and tractor yokes must be in line.	Replace driveline.
	10. Wire or rope wrapped around blade beam.	Remove wire or rope.
	11. Blades worn and are out of balance.	Replace blades, in sets.

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
Gearbox noisy	1. Rough gears.	Run in or change gears.
	2. Worn bearings.	Replace bearing.
	3. Low oil in gearbox	Check level and add oil.
Gearbox leaking.	1. Damaged oil seal.	Replace seal.
	2. Bent shaft.	Replace oil seal and shaft.
	3. Shaft rough in oil seal area.	Replace or repair shaft.
	4. Oil seal installed wrong.	Replace seal.
	5. Oil seal not sealing in the housing.	Replace seal or use a sealant on outside diameter of seal.
	6. Oil level too high.	Drain oil to proper level.
	7. Hole in geatbox.	Replace gearbox.
	8. Gasket damaged.	Replace gasket.
	9. Bolts loose.	Tighten bolts.
Excessive wear of tailwheel tire.	1. Tire not turning properly.	Check wheel assembly for proper lubrication.
	2. Tailwheel not castering properly.	Check tailwheel yoke assembly for proper lubrication or for mechanical binding.
Front hitch " A " frame bending sideways.	1. Operator turning sharply hitting objects with tailwheel frame or mower deck.	Drive carefully and plan turns to avoid hitting buildings, posts, trees,etc.
	2. Tailwheel not castering properly.	Check tailwheel yoke(see above under tire wear).
	3.Mower is being operated to low and mower deck is contacting ground during turns.	A. Raise mower(especially on rough ground). B. Set stop on hitch controls lever so hitch lift arms do not drop mower on ground.
	4. Tractor 3 pt. Hitch is leaking down and mower deck is contacting ground.	A. Repair tractor hitch hydraulic system. B. Use limit chains to keep lift arms from going lower than set limit.

ROTARY CUTTER PARTS DIAGRAM



ROTARY CUTTER PARTS LIST

Part#	Description	Specification	Qty.	Part#	Description	Specification	Qty.
1	Cotter Pin	5x50	1	32	PTO		1
2	Hex Head Bolt	M16x45	10	33	Hair Pin		2
3	Flat Washer	16	14	34	Pin		1
4	Lock Washer	16	14	35	Draw Pin	ϕ22	2
5	Hex Nut	M16	14	36	Flat Washer	22	2
6	Hex Head Bolt	M16x70	2	37	Lock Washer	22	2
7	Bolt	M16x130	1	38	Nut	M22	2
8	Hex Nut	M24	1	39	Support Bar		2
9	Hex Head Bolt	M24x180	1	40	Steel Sleeve	ϕ32xϕ16.5	1
10	Hex Head Bolt	M14x130	1	41	Flat Washer	24	1
11	Flat Washer	14	1	42	Carriage Bolt	M12x30	4
12	Lock Washer	14	1	43	Link Plate		1
13	Nut	M14	1	44	Flat Washer	12	4
14	Steel sleeve	ϕ22.5xϕ16.5	1	45	Lock Washer	12	4
15	U Bracket		1	46	Nut	M12	4
16	Hitch Bracket		1	47	Chain		4': 17
17	Hex Nut	M27x1.5	2				5': 24
18	Flat Washer	27	2	48	Chain Plate		1
19	Castle Nut	M24	1	49	Bolt	M6x25	2
20	Tail Wheel	ϕ390x95	1	50	Chain Rod		1
21	Main Deck		1	51	Lock Nut	M6	2
22	Lock Washer	27	2	52	Flat Plate		1
23	Wheel Assembly A-frame		1	53	Lock Pin		1
24	Life Arm Brace		2	54	Bolt	M10x35	2
25	Gear Box		1	55	Flat Washer	10	2
26	Blade Holder		1	56	Lock Washer	10	2
27	Adjusting Bar		1	57	Nut	10	2
28	Cutting Blade		2	58	Bolt Cap		1
29	Bolt	M27x1.5	2	59	Lock Washer	24	1
30	Wheel Yoke		1	60	Bolt	M12x85	1
31	Side Bar		2	61	Lock Nut	M12	1